Remarks

Allowance of the pending claims is respectfully requested. Claims 1-25 are now pending.

In accordance with 37 C.F.R. 1.121(c)(1)(ii), a marked-up version of the claims is unnecessary since only new claim 25 is added herewith. Support for the subject matter of this new claim can be found throughout the application as filed. For example, reference page 10, lines 8-24. No new matter is added to the application by any amendment presented.

In the Office Action, claims 1-6, 11-13 & 28-20 were rejected under 35 U.S.C. §103(a) as being unpatentable over Dias et al. (U.S. Patent No. 5,907,849) in view of Blott et al. (U.S. Patent No. 6,449,618), while claims 7-10, 14-17 and 21-24 were rejected under 35 U.S.C. §103(a) as being unpatentable over Dias et al. in view of Blott et al. as applied to claims 1-6, 11-13 and 18-20, and further in view of Badovinatz et al. (U.S. Patent No. 5,805,786). These new rejections are respectfully, but most strenuously, traversed and reconsideration thereof is requested.

An "obviousness" determination requires an evaluation of whether the prior art taken as a whole would suggest the claimed invention taken as a whole to one of ordinary skill in the art. In evaluating claimed subject matter as a whole, the Federal Circuit has expressly mandated that functional claim language be considered in evaluating the claim relative to the prior art. Applicants respectfully submit that the application of these standards to the independent claims presented herewith leads to the conclusion that the recited subject matter would not have been obvious to one of ordinary skill in the art based upon the newly applied patents.

As recited in claim 1, for example, applicants' invention comprises a technique for recovering from failures within a shared nothing distributed computing environment. The technique concludes detecting a failure within the shared nothing distributed computing environment. The shared nothing computing environment is a transaction based environment, and the technique further includes automatically recovering from the failure. One or more

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transactions affected by the failure are recited to be automatically executed to completion notwithstanding the failure. This automatic execution occurs without rolling back the one or more transactions and without requiring a reposting of the one or more transactions.

With respect to the rejection to the independent claims, applicants respectfully traverse the combination proposed. Absent from the Office Action is an express teaching, suggestion or incentive identified in the art for making the combination. The justification for the combination of patents in the Office Action is that they allegedly teach the benefit of making the recovery process faster and more efficient by avoiding manual intervention, roll back or reposting of the recovered transactions. Applicants respectfully submit that this justification does not identify an adequate teaching, suggestion or incentive in the art itself for the combination proposed in the Office Action. In this case, the basis for the combination is believed drawn from applicants' own disclosure. Applicants' above-summarized technique comprises an approach for recovery from failures within a shared nothing distributed computing environment. Within this computing environment, one or more transactions affected by a failure are automatically executed to completion. It is applicants' disclosure which teaches that this execution is accomplished without rolling back and without reposting the one or more transactions. The protocol necessary to accomplish such a recovery and automatic execution of that transaction would not be readily apparent to one skilled in the art given the teachings of Dias et al. and Blott et al.

In addition, Dias et al. describe a technique for recovering from a failure of a processing node in a partitioned shared nothing database processing system. The system described by Dias et al. is a high availability system, meaning that there cannot be a single point of failure. For example, reference column 1, lines 39-43 thereof. In contrast, the teachings of Blott et al. are directed to a real-time event processing system for processing a sequence of events generated by one or more applications. The Blott et al. system is an architecture which has a single point of failure on which the whole system depends. For example, reference column 8, lines 6-8. Blott et al. do state that several nodes could work together to implement a mapping function, to achieve high availability, but the patent does not teach, suggest or imply the protocols necessary to accomplish such an implementation. Thus, applicants respectfully submit that Blott et al. is

deficient in teaching any recovery approach for a high availability system, such as described by Dias et al. Because the only approach described by Blott et al. comprises a single point of failure approach, applicants respectfully submit that one of ordinary skill in the art would not have been led by the teachings thereof to combine those teachings with Dias et al. as proposed in the Office Action. Although Blott et al. do suggest modifying their approach for a high availability system, there is simply <u>no</u> teaching, suggestion or implication <u>how that modification could be accomplished</u> by one of ordinary skill in the art. Further, applicants respectfully submit that accomplishing the modification would not have been readily achievable by one of ordinary skill in the art, as evidenced by the extensive disclosure and drawings of the present application.

For the above reasons, applicants respectfully request reconsideration and withdrawal of the obviousness rejection to the independent claims presented herewith based upon a proposed combination of Dias et al. and Blott et al.

Even assuming, arguendo, that the combination of Dias et al. and Blott et al. is proper, the combination still fails to teach or suggest features of the recited invention. For example, each of the independent claims presented recites automatically recovering from the failure within the shared nothing distributed computing environment <u>without rolling back</u> the one or more transactions <u>and without requiring reposting</u> of the one or more transactions. These characterizations are believed to distinguish applicants' invention from any combination of Dias et al. and Blott et al.

As indicated in the Office Action, Dias et al. does not teach automatically recovering from the failure, wherein one or more transactions affected by the failure are automatically executed to completion without rolling back the one or more transactions and without requiring a reposting of the one or more transactions. Applicants agree. For an alleged teaching of this concept, the Office Action relies upon Blott et al. However, applicants respectfully submit that the Office Action misinterprets the teachings of Blott et al. in this regard. Blott et al. expressly teach that in nearly all cases it is possible to recover to the last successfully processed event and to replay accepted events from that point forward. (See column 27, lines 23-31). This replaying

of accepted events is a reposting of the accepted events, which is clearly contrary to applicants' technique recited in the independent claims presented. Again, applicants recite automatically recovering from the failure both without rolling back the one or more transactions <u>and without requiring a reposting</u> of the one or more transactions. While Blott et al. appear to discuss recovering from a failure without rolling back, the patent does expressly teach that the technique presented replays accepted events from that point forward. This replaying is a reposting of the events, and therefore teaches away from applicants' approach.

For this additional reason, applicants respectfully submit that one of ordinary skill in the art would not have been led the teachings of Dias et al. in combination with Blott et al. to a recovery approach as recited in the independent claims presented. A whole new protocol is added by the present invention to accomplish automatic recovery and automatic execution of one or more transactions affected by a failure. This automatic execution is recited to be accomplished without rolling back the transactions <u>and</u> without requiring reposting of the one or more transactions. No similar functionality is provided in either Blott et al. or Dias et al., or the other known patents.

For all the above reasons, applicants respectfully request withdrawal of the rejection to independent claims 1, 2 & 3.

The dependent claims are believed allowable for the same reasons as the independent claims, as well as for their own additional characterizations. In this regard, applicants respectfully traverse the secondary obviousness rejection to claims 7-10, 14-17 and 21-24 based on Dias et al. in view of Blott et al. and Badovinatz et al. for the same reasons noted above with respect to the independent claims. Further, applicants add herewith a new dependent claim 25 which further characterizes the environment as a distributed synchronous transaction system within a shared nothing distributed computing environment. None of the applied art, and in particular, the Dias et al. patent, address recovery within such a system, and therefore, applicants respectfully submit that this claim distinguishes over the applied art.

In view of the above remarks, applicants respectfully request allowance of all claims pending herein. Applicants' undersigned attorney is available should any remaining issue require resolution.

Respectfully submitted,

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